

The Complex of *Trechiama fujitai* (Coleoptera, Trechinae) from Hyôgo Prefecture, West Japan (II)

—Two New Species and Several New Records from the Ibo-gawa Drainage Area—

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Abstract Two new species of the *fujitai* complex in the group of *Trechiama oni* are described from the drainage area of the Ibo-gawa River, which flows from the mid-western part of Hyôgo Prefecture to the Seto Inland Sea, under the names *T. (s. str.) saitoi* ASHIDA, sp. nov., and *T. (s. str.) ajari* ASHIDA, sp. nov. Additional records of *T. (s. str.) moritai* S. UÉNO, *T. (s. str.) oja* ASHIDA, *T. (s. str.) crassilobatus* S. UÉNO, and *T. (s. str.) carinatus* S. UÉNO et M. MORI are also reported from this area.

In the first part of this series, I reported three species including two new species of trechine beetles belonging to the *fujitai* complex of the group of *Trechiama oni* from the drainage area of the Maruyama-gawa that flows from the central part of Hyôgo Prefecture to the Sea of Japan (ASHIDA, 2003). From the western part of Hyôgo, very few records of the *Trechiama* have so far been known, especially almost none from the drainage area of the Ibo-gawa River that flows from the mid-western part of Hyôgo to the Seto Inland Sea. In this paper, I am going to describe two new species of the *fujitai* complex from this area and report several additional records of known species.

The abbreviations used herein are as follows: HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the mid-line; PA – width of pronotal apex; PB – width of pronotal base; EW – greatest width of elytra; EL – greatest length of elytra; M – arithmetic mean. Measurement was taken on six male and female specimens each. Three towns that appear in this paper, Yamasaki-chô, Ichinomiya-chô and Haga-chô, were united into a new city, Shisô-shi, on April 1, 2005.

Trechiama (s. str.) *saitoi* ASHIDA, sp. nov.

(Figs. 1, 3–5)

Length: 5.25–6.10 mm (from apical margin of clypeus to apices of elytra).

Belonging to the *fujitai* complex of the group of *Trechiama oni* and close to *T. carinatus* S. UÉNO et M. MORI (2000, p. 32, figs. 1–3) from Kamiakisato in Kôzuki-chô, Hyôgo Prefecture, though clearly different in the configuration of male genitalia.

Color yellowish brown with light-colored appendages. Head, antennae and mouth parts as in *T. carinatus*. Pronotum similar to that of *T. carinatus*, but a little wider, more convex on dorsum, widest at two-thirds from base; frontal margin almost straight with obtuse front angles, not emarginate at middle unlike that of *T. carinatus*; sides strongly arcuate in front, deeply sinuate at basal third, and then divergent again towards hind angles, which are sharp and protrude postero-laterad; postangular setae absent; basal margin slightly emarginate at middle; PW/HW 1.35–1.46 (M 1.42), PW/PL 1.03–1.17 (M 1.10), PW/PA 1.35–1.53 (M 1.46), PW/PB 1.40–1.56 (M 1.47), PB/PA 0.94–1.08 (M 0.99). Elytra also similar to those of *T. carinatus*, ovate, widest at about middle, equally narrowed towards bases and apices; shoulders effaced, with pre-humeral borders very oblique; EW/PW 1.69–1.84 (M 1.77), EL/PL 2.83–3.00 (M 2.90), EL/EW 1.44–1.53 (M 1.48); striae distinctly impressed as in *T. carinatus*; setiferous dorsal pores on stria 5 located at 1/7–1/6 and 5/9–3/5 from base, respectively. Legs as in *T. carinatus*.

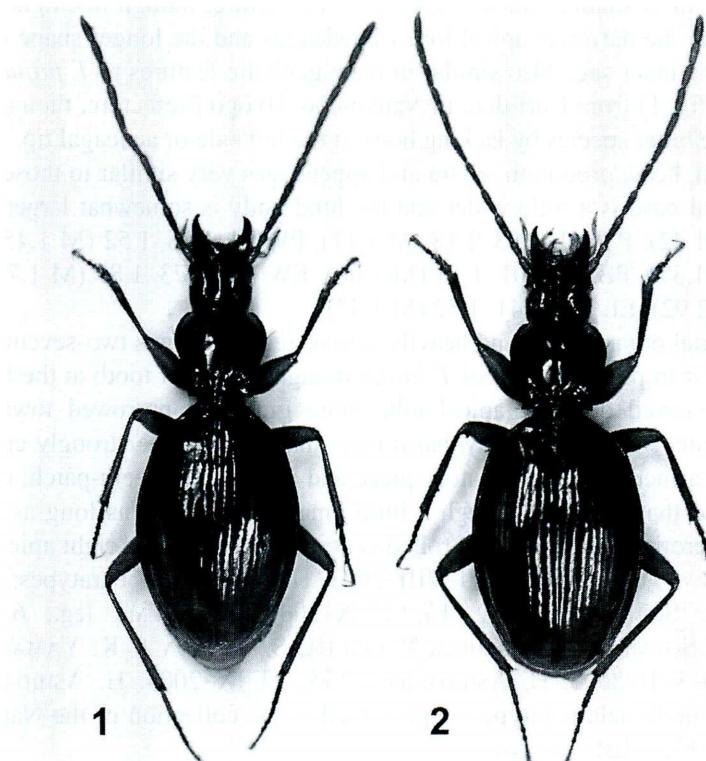
Male genital organ heavily sclerotized. Aedeagus two-sevenths as long as elytra, somewhat compressed and flattened in apical part as in *T. carinatus*, though less strongly curved at basal part; basal orifice small, whose sides are emarginate; sagittal aileron narrow and hyaline; viewed laterally, middle part moderately convex on dorsum, then gradually narrowed towards apical tip, which is thicker than in *T. carinatus*; viewed dorsally, apical lobe wide and parallel-sided; viewed ventrally, a median carina present behind the middle, which is a little lower than in *T. carinatus*. Inner sac armed with a teeth-patch and a small copulatory piece; teeth-patch small, formed by sclerotized teeth, lying on the left side at about middle of aedeagus; copulatory piece very lightly sclerotized, lamellar, lying at the right side of teeth-patch, one-eighteenth as long as aedeagus, rolled ventrad, whose right-apical corner is minutely projected. Styles as in *T. carinatus*.

Type series. Holotype: ♂, 5–IX–2004, H. ASHIDA leg. Paratypes: 7♂♂, 5♀♀, 28–VIII–1999, T. SAITÔ, S. TANAKA & K. KITAYAMA leg.; 4♂♂, 5♀♀, 29–VIII–1999, H. ÔHIRA, S. YAMASHITA, K. ITÔ & Y. OKUDA leg.; 2♂♂, 1♀, 23–IX–1999, A. SOUMA leg.; 1♀, 26–IX–1999, A. SOUMA leg.; 2♀♀, 26–XI–2000, A. SOUMA leg.; 2♀♀, 14–X–2001, A. SOUMA leg.; 8♂♂, 1♀, 22–IX–2002, A. SOUMA leg.; 1♂, 6♀♀, 7–IX–2003, H. ASHIDA leg.; 1♂, 3♀♀, 5–X–2003, H. ASHIDA leg.; 1♀, 3–V–2004, H. ASHIDA leg.; 3♂♂, 3♀♀, 4–V–2004, A. SOUMA & S. YAMASHITA leg.; 6♂♂, 5♀♀, 5–IX–2004, H. ASHIDA leg.; 5♂♂, 3♀♀, 10–X–2004, T. SAITÔ, I. TANAKA, H. KAWAMOTO & T. SATÔ leg. The holotype and one female paratype are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Type locality. Kamino-kami (480–620 m alt.), Yamasaki-chô, Hyôgo Prefecture, West Japan.

Etymology. This remarkable new species is named after Mr. Takumi SAITÔ, who is one of the discoverers of this new species.

Notes. *Trechiamma saitoi* is doubtless a close relative of *T. carinatus* because of sharing median carina on the ventral surface of aedeagus. Kamino-kami, the type lo-



Figs. 1–2. *Trechiama* (s. str.) spp., ♂, dorsal view: *T. saitoi* ASHIDA from Kaminokami in Yamasaki-chô (1); *T. ajari* ASHIDA from Ajari in Ichinomiya-chô (2).

cality of this new species is, however, rather apart from the distributional range of *T. carinatus*. Furthermore, that locality is surrounded by other species, such as *T. fujitai*, *T. moritai* and *T. crassilobatus*: namely it is only 8 km distant to the east by north from Ruri-dera, the type locality of *T. fujitai*; 18 km distant to the south-southeast from the Wakasugi-tôge, that of *T. moritai*; and 6 km distant to the west-southwest from Tani, the westernmost known locality of *T. crassilobatus*. The type specimens were dug out from taluses along the riverhead of the Isawa-gawa, a branch of the Ibo-gawa River.

Trechiama (s. str.) *ajari* ASHIDA, sp. nov.

(Figs. 2, 6–8)

Length: 5.40–5.85 mm (from apical margin of clypeus to apices of elytra).

Belonging to the *fujitai* complex of the group of *Trechiama oni*. Externally very similar to *T. oja* ASHIDA (2003, p. 435, figs. 2, 8–10) from Akenobe in Ôya-chô, Hyôgo Prefecture, and *T. moritai* S. UÉNO (1985, pp. 168, 170, figs. 1–2) from the

Wakasugi-tôge in Nishiawakura-son, Okayama Prefecture, though distinguished from those species by the narrower apical lobe of aedeagus and the longer shape of copulatory piece in the inner sac. Also similar in male genitalic features to *T. fujitai* S. UÉNO (1969, p. 779, fig. 1) from Ruri-dera in Nankô-chô, Hyôgo Prefecture, though discriminated from the latter species by lacking hook at the left side of aedeagal tip.

Coloration, head, pronotum, elytra and appendages very similar to those of *T. oja*, but the pronotal base is a little wider and the hind body is somewhat larger. PW/HW 1.35–1.46 (M 1.42), PW/PL 1.03–1.18 (M 1.11), PW/PA 1.38–1.52 (M 1.45), PW/PB 1.31–1.45 (M 1.37), PB/PA 1.01–1.15 (M 1.06), EW/PW 1.73–1.87 (M 1.79), EL/PL 2.81–3.06 (M 2.92), EL/EW 1.41–1.52 (M 1.47).

Male genital organ robust and heavily sclerotized. Aedeagus two-sevenths as long as elytra, similar in profile to that of *T. fujitai* though devoid of tooth at the left side of aedeagal tip; viewed dorsally, apical lobe more gradually narrowed towards apex, which is truncated; viewed laterally, basal part smaller but more strongly curved ventrad. Inner sac armed with a copulatory piece and a left lateral teeth-patch; copulatory piece similar to that of *T. oja* though a little longer, one-fourth as long as aedeagus, moderately sclerotized, lamellar, and rolled ventrad, with projected right apical corner.

Type series. Holotype: ♂, 30–VIII–2003, H. ASHIDA leg. Paratypes: 4♂♂, 1♀, 9–X–2000, A. SOUMA leg.; 1♂, 1♀, 15–X–2000, A. SOUMA leg.; 6♂♂, 6♀♀, 4–V–2001, A. SOUMA, S. YAMASHITA, Y. OKUDA, S. TANAKA & K. YAMAMOTO leg.; 3♂♂, 4♀♀, 30–VIII–2003, H. ASHIDA leg.; 2♀♀, 23–IX–2004, H. ASHIDA leg. The holotype and one female paratype are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

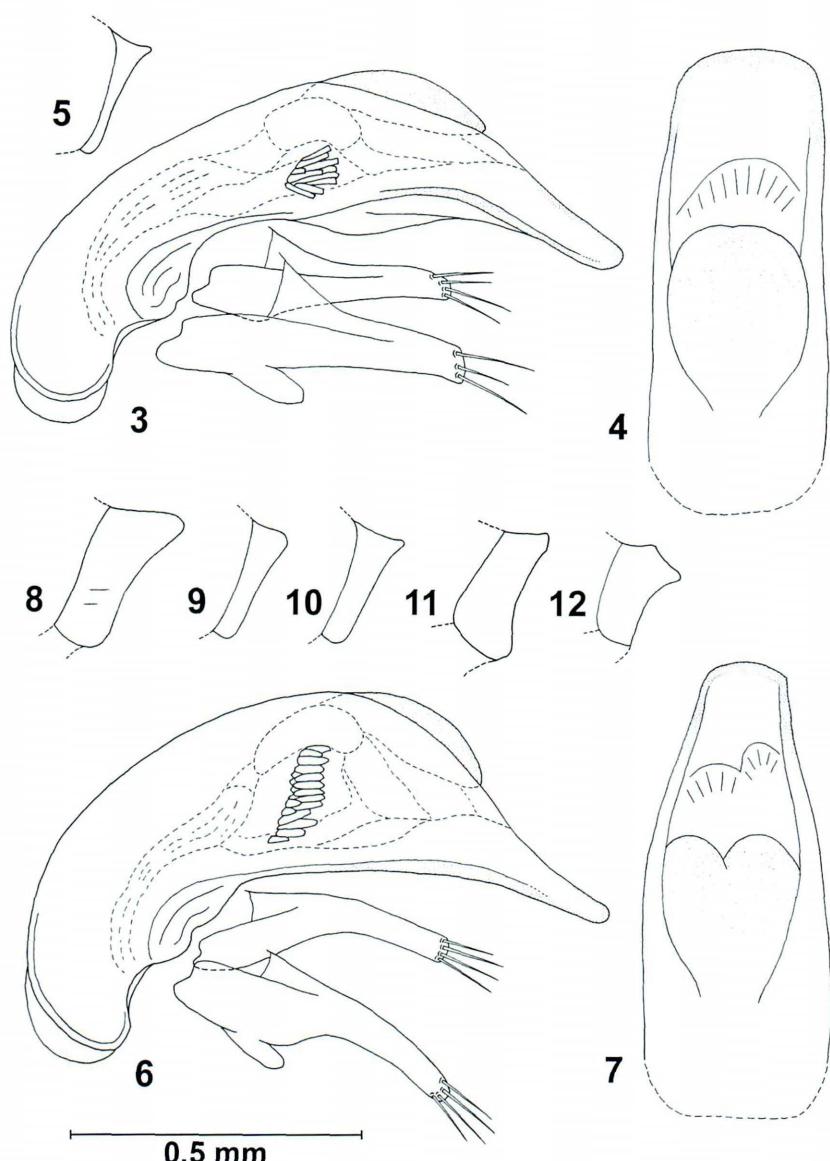
Type locality. Ajari (600–700 m alt.), the eastern slope of Mt. Ajari-yama (1,087 m in height), Ichinomiya-chô, Hyôgo Prefecture, West Japan.

Further record. 1♂, the southern slope (650 m alt.) of Mt. Fujinashi-yama (1,139 m in height), Ichinomiya-chô, 5–XI–2000, A. SOUMA leg.

Etymology. This new species is named after the type locality.

Notes. Although very difficult to discriminate from *T. moritai* and *T. oja* in external morphology, the present new species possesses a regularly narrowed apical lobe of aedeagus and a longer copulatory piece in the inner sac. On the contrary, the aedeagus is so similar in profile to that of *T. fujitai* that this new species may be related directly to the latter species.

Ajari, the type locality of the present species, is located at the riverhead of the main stream of the Ibo-gawa River. It is 9.5 km distant to the southwest from Akenobe, the type locality of *T. oja*; 16 km distant to the east by south from the Wakasugi-tôge, that of *T. moritai*; 14 km distant to the west by north from Kawakami, that of *T. crassilobatus*; and 17 km distant to the northeast from Ruri-dera, that of *T. fujitai*. The type specimens were dug out from deposit of soil along the stream.



Figs. 3–12. Male genitalia of *Trechiama* (s. str.) spp.: left lateral view of aedeagus (3, 6); apical part of aedeagus, dorso-apical view (4, 7); separated copulatory piece, dorsal view (5, 8–12). — *T. saitoi* ASHIDA from Kaminokami (3–5). — *T. ajari* ASHIDA from Ajari (6–8). — *T. moritai* S. UÉNO from the Wakasugi-tôge (9); from Sakanotani (10). — *T. crassilobatus* S. UÉNO from Sakanotsuji-tôge (11). — *T. carinatus* S. UÉNO et M. MORI from Kurimachi (12).

Trechiama (s. str.) *moritai* S. UÉNO, 1985

(Figs. 9–10)

Trechiama (s. str.) *moritai* S. UÉNO, 1985, Mem. natn. Sci. Mus., Tokyo, (18), pp. 168, 170, figs. 1–2; type locality: Wakasugi-tôge in Nishiawakura-son.

Additional records. 1♂, Wakasugi-tôge (950 m alt.), Nishiawakura-son, Okayama Prefecture, 9–V–1998, S. YAMASHITA leg.; 1♂, same locality, 1–X–2000, A. SOUMA leg.; 4♂♂, 2♀♀, Okinoyama-rindô (1,100 m alt.), the northern slope of Mt. Okinoyama (1,319 m in height), Chizu-chô, Tottori Prefecture, 17–VI–2001, A. SOUMA leg.; 1♂, 1♀, Okinoyama-rindô (1,100 m alt.), Wakasa-chô, Tottori Prefecture, 21–IX–2003, A. SOUMA leg.; 1♂, Ôdôri-nakae-rindô (650 m alt.), Wakasa-chô, Tottori Prefecture, 16–VIII–2001, A. SOUMA leg.; 1♂, Akasai Valley (600–750 m alt.), Haga-chô, Hyôgo Prefecture, 2–XII–2001, A. SOUMA leg.; 1♂, same locality, 3–IV–2002, K. KITAYAMA leg.; 2♂♂, 3♀♀, same locality, 3–V–2003, A. SOUMA leg.; 2♂♂, 2♀♀, same locality, 15–V–2003, Y. OKUDA leg.; 3♂♂, 2♀♀, Onzui Valley (680 m alt.), Haga-chô, Hyôgo Prefecture, 1–VIII–1998, K. KITAYAMA leg.; 3♂♂, 1♀, same locality, 2–VIII–1998, K. ITÔ leg.; 6♂♂, 4♀♀, same locality, 30–VIII–1998, K. KITAYAMA, H. ÔHIRA, Y. OKUDA, K. KAMADA & H. ASHIDA leg.; 1♂, same locality, 15–IV–2000, T. SAITÔ leg.; 1♂, 1♀, Hori (700 m alt.), the southern slope of Mt. Hyônosan (1,510 m in height), Haga-chô, Hyôgo Prefecture, 15–IX–1998, M. MORI leg.; 1♂, same locality, 2–V–2004, K. KITAYAMA leg.; 9♂♂, 2♀♀, same locality, 2–VI–2002, A. SOUMA leg.; 9♂♂, 4♀♀, Sakanotani Valley (850–1,150 m alt.), the southern slope of Mt. Hyônosan, Haga-chô, Hyôgo Prefecture, 1–VIII–1998, K. ITÔ, A. SOUMA & K. KITAYAMA leg.

Notes. Although *T. moritai* was carefully described by UÉNO (1985), the copulatory piece in the inner sac of male genitalia was not shown in the figure. Close examination on the fully mature specimens from the type locality revealed that *T. moritai* has a small and lightly sclerotized copulatory piece, which is much shorter than those of the other relatives such as *T. oja* and *T. crassilobatus*.

The specimens from Okinoyama-rindô and Ôdôri-nakae-rindô, which are located to the northwest and the east of the Wakasugi-tôge, respectively, are exactly the same as the topotypical specimens. The Akasai and Onzui specimens are somewhat larger in body size with more round-sided elytra than topotypical ones, but the male genitalic features are identical. The Hori specimens have the same external features as Akasai and Onzui specimens, but the copulatory piece is a little longer with minute projection at the right-apical corner. The Sakanotani specimens possess the same genitalic characteristics with the Hori specimens, but somewhat slenderer in body proportion.

Both the Akasai and Onzui Valleys lie on the eastern slope of Mt. Mimuro-yama (1,358 m in height) and are located at the right side of the Hikihara-gawa River, one of the tributaries of the Ibo-gawa River. These localities are 7.5–9 km and 11 km distant, respectively, from the Wakasugi-tôge. Hori and Sakanotani, both of which are located near the riverhead of the Hikihara-gawa, are about 13–14 km northeast of the Wakasugi-tôge and about 3.5–4 km west of the Yokoyuki Valley, the westernmost known lo-

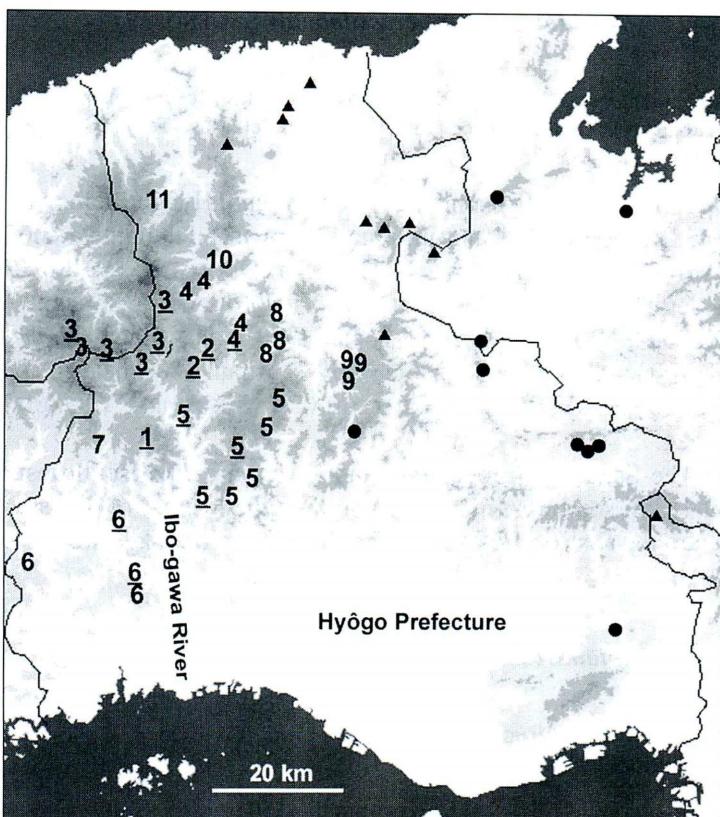


Fig. 13. Map showing the distribution of the species belonging to the *Trechiamma fujitai* complex — 1, *T. saitoi* ASHIDA; 2, *T. ajari* ASHIDA; 3, *T. moritai* S. UÉNO; 4, *T. oja* ASHIDA; 5, *T. crassilobatus* S. UÉNO; 6, *T. carinatus* S. UÉNO et M. MORI; 7, *T. fujitai* S. UÉNO; 8, *T. cuspidatus* S. UÉNO; 9, *T. latilobatus* ASHIDA; 10, *T. spinulifer* S. UÉNO; 11, *T. hiurai* S. UÉNO; underlined numbers, new species or records presented in this paper; triangles, *notoi* complex; circles, *kosugei* complex.

cality of *T. oja*.

Trechiama (s. str.) *oja* ASHIDA, 2003

Trechima (s. str.) *oja* ASHIDA, 2003, Elytra, Tokyo, **31**, p. 435, figs. 2, 8–10; type locality: Akenobe in Ōya-chō.

Additional record. 1♂, Fudono-tōge (550 m alt.), Ichinomiya-chō, Hyōgo Prefecture, 11-XI-2000. A. SOUMA leg.

Notes. The Fudono-tôge is 2 km south by west of Akenobe, the type locality of *T. oja*. Only a single male was obtained from a gully at the riverhead of the Kuratokogawa River, which is one of the sources of the Ibo-gawa River. This population may have migrated from the northern side to the south across the Fudono-tôge pass.

Trechiamma (s. str.) *crassilobatus* S. UÉNO, 1977

(Fig. 11)

Trechiamma (s. str.) *crassilobatus* S. UÉNO, 1977, Bull. natn. Sci. Mus., Tokyo, (A), **3**, p. 157, figs. 1–3; type locality: Kawakami in Ōkawachi-chō; 1985, Mem. natn. Sci. Mus., Tokyo, (18), pp. 168, 175. — ASHIDA, 1997, Gekkan-Mushi, Tokyo, (322), p. 4.

Additional records. 1♀, Kamioda, Ōkawachi-chō, Hyōgo Prefecture, 3–V–1998, H. ŌHIRa leg.; 12♂♂, 5♀♀, Sakanotsuji-tōge (750 m alt.), Ichinomiya-chō, Hyōgo Prefecture, 30–VIII–1998, K. KITAYAMA, H. ŌHIRa, Y. OKUDA, K. KAMADA, N. SUMIOKA & H. ASHIDA leg.; 9♂♂, 4♀♀, same locality, 2–VI–2001, A. SOUMA leg.; 7♀♀, same locality, 23–IX–2004, H. ASHIDA leg.; 3♂♂, Tani (300 m alt.), Haga-chō, Hyōgo Prefecture, 27–VII–2003, A. SOUMA leg.; 5♂♂, 6♀♀, Mitani (200 m alt.), Yamasaki-chō, Hyōgo Prefecture, 2~3–V–2004, S. YAMASHITA, S. NAKAMURA, Y. OKUDA, A. SOUMA & H. ASHIDA leg.

Notes. The Sakanotsuji-tōge, Tani and Mitani are 7 km southwest, 14 km west by south and 18 km southwest of Kawakami, the type locality of this species, respectively. These are the first record of this species from the drainage area of the Ibo-gawa River.

Trechiamma (s. str.) *carinatus* S. UÉNO et M. MORI, 2000

(Fig. 12)

Trechiamma (s. str.) *carinatus* S. UÉNO et M. MORI, 2000, Elytra, Tokyo, **28**, p. 32, figs. 1–3; type locality: Kamiakisato in Kōzuki-chō.

Additional records. 3♂♂, 1♀, Kurimachi (150 m alt.), Shingū-chō, Hyōgo Prefecture, 26–XII–1999, K. KITAYAMA, T. SAITŌ & H. ASHIDA leg.; 4♂♂, 8♀♀, same locality, 4–V–2001, S. NAKAMURA & H. ASHIDA leg.; 3♂♂, 1♀, Yuasaguchi (160 m alt.), Shimohongō, Mikazuki-chō, Hyōgo Prefecture, 18–III–2000, T. SAITŌ leg.; 1♂, same locality, 25–III–2000, T. SAITŌ leg.; 1♂, 2♀♀, Chaya (170 m alt.), Mikazuki-chō, Hyōgo Prefecture, 25–III–2000, T. SAITŌ leg.; 3♂♂, 4♀♀, same locality, 24–VI–2000, T. SAITŌ leg.; 1♂, Mikazuki-higashi (160 m alt.), Mikazuki-chō, Hyōgo Prefecture, 25–III–2000, T. SAITŌ leg.; 2♀♀, Nōdani (250 m), Mikazuki-chō, Hyōgo Prefecture, 15–VI–2000, Y. OKUDA leg.; 2♂♂, 4♀♀, Iwaya-gawa Valley (250 m), Mikazuki-chō, Hyōgo Prefecture, 19–V–2001, A. SOUMA leg.

Notes. This species was originally described from Kōzuki-chō and Aioi-shi, both in Hyōgo Prefecture, and no additional record has been known. Thus, these records are the first from Shingu-chō and Mikazuki-chō. Kurimachi is located on the right side of the Kurisu-gawa River, one of the tributaries of the Ibo-gawa.

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要 約

芦田 久：兵庫県のフジタメクラチビゴミムシ系（第II報）—揖保川流域の2新種および数種の追加記録—。——兵庫県中西部から南へ流れ瀬戸内海へ注ぐ揖保川流域は、ナガチビゴミムシ属オニメクラチビゴミムシ群の分布域に含まれるが、これまでに正式に記録されたものはほとんどなかった。今回、フジタメクラチビゴミムシ系に属する2新種を含む6種が見いだされたので、新種については命名・記載し、既知種については追加記録を示した。ヤマサキメクラチビゴミムシ *Trechiamma* (s. str.) *saitoi* ASHIDA, sp. nov. は揖保川支流の伊沢川源流部に分布し、基準産地は山崎町上ノ上である。アジャリメクラチビゴミムシ *T. (s. str.) ajari* ASHIDA, sp. nov. は揖保川源流部に分布し、基準産地の一宮町阿舍利、および同町の藤無山南麓に産する。岡山県西粟倉村若杉峠が基準産地であるワカスギメクラチビゴミムシ *T. (s. str.) moritai* S. UÉNO を鳥取県智頭町沖ノ山林道と若桜町大通中江林道、および揖保川支流の引原川流域の波賀町赤西渓谷、音水渓谷、氷ノ山南西麓から新たに記録した。また、大屋町明延が基準産地であるオオヤメクラチビゴミムシ *T. (s. str.) oja* ASHIDA を揖保川源流のひとつ倉谷川上流部の一宮町富土野から、大河内町川上の銅廃坑が基準産地であるトノミネメクラチビゴミムシ *T. (s. str.) crassilobatus* S. UÉNO を引原川・揖保川左岸の波賀町谷、一宮町坂の辻峠、山崎町三谷から、上月町上秋里が基準産地であるコウヅキメクラチビゴミムシ *T. (s. str.) carinatus* S. UÉNO et M. MORI を新宮町と三日月町から、それぞれ記録した。

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